

Claims

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1. A perovskite titanium-containing composite oxide particle having a composition represented by general formula (I), wherein the specific surface area is about 10 to about 200 m²/g, the specific surface area diameter D₁ of primary particles defined by formula (II) is about 10 to about 100 nm, and a D₂/D₁ ratio of the average particle size D₂ of secondary particles to D₁ is about 1 to about 10:

M(TiO₃) --- (I)

(wherein M is at least one of Ca, Sr, Ba, Pb, or Mg)

D₁ = 6/ρS --- (II)

(wherein ρ is the density of the particles, and S is the specific surface area of the particles.)

2. A sol in which said perovskite titanium-containing composite oxide particle as claimed in Claim 1 is dispersed.

3. A process for producing a sol in which a perovskite titanium-containing composite oxide particle represented by general formula (I) is dispersed, comprising the step of allowing a titanium oxide particle

comprising a brookite crystalline form to react with a metal salt comprising at least one of Ca, Sr, Ba, Pb, or Mg in a liquid phase:

$M(\text{TiO}_3)$ --- (I)

(wherein M is at least one of Ca, Sr, Ba, Pb, or Mg.)

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~~4. A process for producing a sol in which a perovskite titanium-containing composite oxide particle represented by general formula (I) is dispersed, comprising the step of allowing a titanium oxide sol prepared by subjecting a titanate to hydrolysis in an acid solution to react with a metal salt comprising at least one of Ca, Sr, Ba, Pb, or Mg in a liquid phase:~~

~~$M(\text{TiO}_3)$ --- (I)~~

~~(wherein M is at least one of Ca, Sr, Ba, Pb, or Mg.)~~

5. A sol obtained by said production process as claimed in Claim 3 or 4.

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~~6. A perovskite titanium-containing composite oxide particle obtained by removing a dispersion medium from said sol as claimed in Claim 5.~~

7. The production process of said sol as claimed in Claim 3 or 4, wherein said liquid phase is alkaline.

8. A thin film formed from said sol as claimed in Claim 2.

9. A thin film formed from said sol as claimed in Claim 5.

10. A thin-film laminated product comprising a base and said thin film as claimed in Claim 8 which is overlaid on said base.

11. A thin-film laminated product comprising a base and said thin film as claimed in Claim 9 which is overlaid on said base.

12. The thin-film laminated product as claimed in Claim 10, wherein said base is ceramic, metal, glass, plastic, paper, wood, or concrete.

13. The thin-film laminated product as claimed in Claim 11, wherein said base is ceramic, metal, glass,

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plastic, paper, wood, or concrete.

14. The perovskite titanium-containing composite oxide particle as claimed in Claim 1, wherein M represents Sr.

15. The thin film as claimed in Claim 8, wherein M represents Sr.

16. The thin film as claimed in Claim 9, wherein M represents Sr.

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